

**PATENT APPLICATION**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Oji KUNO

Group Art Unit: 1754

Application No.: 10/690,240

Examiner: C. NGUYEN

Filed: October 22, 2003

Docket No.: 117585

For: A METHOD FOR PREPARING METAL OXIDE PARTICLES AND AN  
EXHAUST GAS PURIFYING CATALYST

**DECLARATION UNDER 37 C.F.R. §1.132**

I, Oji KUNO, a citizen of Japan, hereby declare and  
state:

1. I, Oji KUNO, have a master degree in applied chemistry that was conferred upon me by Keio University, in Kanagawa, Japan in 1998. I have been employed by Toyota Jidosha Kabushiki Kaisha since April, 1998 and I have had a total of 10 years of work and research experience in research and development of chemicals.

2. I am the named inventor in the above-captioned

patent application. I am familiar with the patent application.

3. I have a professional relationship with the Assignee, Toyota Jidosha Kabushiki Kaisha, of the above-identified patent application. In the course of those professional relationships, I received compensation directly from Toyota Jidosha Kabushiki Kaisha for my work.

4. I and/or those under my control and supervision carried out the following experiments to demonstrate the distinctions between the metal oxide particles of the present application and the metal oxide particles of Dransfield.

1) Preparation of the metal oxide particles using Ce sol

100 ml of  $\text{CeO}_2$  sol (TAKI CHEMICAL Co., LTD., NEEDRAL U-15) was dried at  $120^\circ\text{C}$ . The resulting solid material was fired at  $500^\circ\text{C}$  for 2 hours (heating to  $500^\circ\text{C}$  within 1 hour) to prepare  $\text{CeO}_2$  powder.

2) Preparation of the metal oxide particles using Ce

ion

31.9g of diammonium cerium nitrate (KISHIDA CHEMICAL CO. LTD.,) was dissolved in 150 ml of distilled water, and 15.7 ml of 28% aqueous ammonia was added to form hydroxide precipitate. The precipitate was dried at 120°C and the resulting solid material was fired at 600°C for 2 hours (heating to 500°C within 1 hour) to prepare CeO<sub>2</sub> powder.

### 3) Evaluation

The surface area of the powders were evaluated by the BET one point method (see specification, page 14, lines 27-28).

### 4) Result

The surface area of CeO<sub>2</sub> powder prepared by using Ce ion is 31.7 m<sup>2</sup>/g, and the surface area of CeO<sub>2</sub> powder prepared by using Ce sol is 64.2 m<sup>2</sup>/g.

As shown by the above results, it is deemed that the metal particles of the present invention having CeO<sub>2</sub> surface layer prepared by using Ce sol have a surface area higher than that of the metal particles of Dransfield having CeO<sub>2</sub> surface layer prepared by using Ce ion.

Dransfield does not teach or suggest that the metal oxide particles may be used as an exhaust gas catalyst in an exhaust gas environment. In fact, the surface area of the metal particles of Dransfield is not enough for loading a noble metal thereon as catalyst for exhaust gas purification. Therefore, there is no motivation to have led one to have used the particles of Dransfield for exhaust gas purification by loading a noble metal thereon as in the present invention.

5. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date: 6/28/2007

  
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Oji KUNO